

09/581878  
430 Rec'd PCT/PTO 19 JUN 2000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of )  
Tadahiro OHMI et al. ) Group:  
Serial No.: )  
Filed: June 19, 2000 ) Examiner:  
Title: SEMICONDUCTOR MANUFACTURING )  
APPARATUS )

PRELIMINARY AMENDMENT

Hon. Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

Applicant hereby submits the following Amendment.

IN THE SPECIFICATION

Page 1, line 12 please delete "Prior Art" and replace it  
with --Background of the Invention.--

Page 2, line 7 after "such" please insert --,--.

Page 2, line 7 after "as" please insert --by--.

Page 3, line 24 after "lifetime" please insert --of the  
tool--.

Page 4, line 3 please delete "Disclosure of the Invention"  
and replace it with --SUMMARY OF THE INVENTION--.

Page 6, please insert before the first paragraph discussing  
Fig. 1 the following text:

--The above-mentioned and other features and advantages of  
this invention, and the manner of attaining them, will become  
more apparent and the invention will be better understood by

reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:--

Page 6, line 4 please delete "B-O-B'" and replace it with --B-O-O'--.

Page 6, line 11 please delete "B-O-B'" and replace it with --B-O-O'--.

Page 6, line 26 please delete "C-O" and replace it with --B-O-B'--.

Page 7, line 3 please delete "(Description of Symbols)" and replace it with --DETAILED DESCRIPTION OF THE INVENTION--.

Page 8, line 23 after designates, please insert --a--.

Page 10, line 2 please change "pump" to --pumps--.

Page 10, line 3 please delete "as the following" and replace it with --as follows--.

Page 10, line 3 please insert --,-- after "First".

Page 10, line 21 please delete "an".

Page 11, line 6 please delete "them" and replace it with --three--.

Page 12, line 4 please insert --radiation is-- after "Microwave".

Page 12, line 5 please delete "is" and replace it with --and--.

Page 12, line 7 please delete "this micro wave creates" and replace it with --these microwaves create--.

Page 12, line 9 please delete "ashing" and replace it with --etching--.

Page 12, line 17 please insert --Reference number-- before "401".

Page 12, line 25 after "impress" please insert --a--.

Page 13, line 6 please delete "ashing" and replace it with --etching--.

#### IN THE CLAIMS

Please amend the following:

1. (Amended) A semiconductor manufacturing apparatus for processing a substrate surface, said apparatus comprising: [composed of]

a vacuum vessel having a plate and a substrate stage;

[wherein,]

at least one substrate stage is provided on said vacuum vessel [bottom] plate;

a cylinder is installed surrounding said substrate stage;

the gap between said cylinder and said vacuum vessel [top plate or bottom] plate is made variable by lifting/lowering said cylinder;

at least one cylinder lifting/lowering mechanism per one  
said cylinder is provided, in order to separate a space inside  
said cylinder [composing] comprising a processing chamber for  
15 processing said substrate surface from a space outside said  
cylinder [composing] including a transport chamber for  
transferring said substrate;

said transport chamber [is] provided with a substrate  
conveyer mechanism for transferring said substrate between said  
20 processing chamber and said transport chamber through said gap;

said processing chamber is provided with a processing  
chamber gas inlet and a processing chamber gas outlet; and

said transport chamber is provided with a transport chamber  
gas inlet and a transport chamber gas outlet.

2. (Amended) A semiconductor manufacturing apparatus for  
processing a substrate surface, the apparatus[,] composed of a  
vacuum vessel with a top and bottom plate, said apparatus  
comprising:[; wherein,]

5 a plurality of substrate stages are provided on said vacuum  
vessel bottom plate;

cylinders provided respectively with an O ring are connected  
to said bottom plate through a bellows so as to surround said  
substrate stage said cylinders forming a gap with said vacuum  
10 vessel top plate;

the gap between said cylinder and said vacuum vessel top plate is made variable by lifting/lowering said cylinder, and at a position where said gap becomes minimum, a plurality of cylinder lifting/lowering mechanisms per one said cylinder are provided, in order to hermetically separate [separate hermetically] a space inside said cylinder for creating [composing] a processing chamber for processing said substrate surface with said O ring from a space outside said cylinder for creating [composing] a transport chamber for transferring said substrate;

said transport chamber is provided with a substrate conveyer mechanism for transferring said substrate between said processing chamber and said transport chamber through said gap;

said processing chamber is provided with a processing chamber gas inlet and a processing chamber gas outlet; and

said transport chamber is provided with a transport chamber gas inlet and a transport chamber gas outlet.

Claim 3, line 2 please delete "or 2".

Claim 4, line 2 please delete "and claim 3" and replace it with --further--.

7. The semiconductor manufacturing apparatus according to [any one of Claims 1 to 6] Claim 2, wherein said substrate stage

is provided with a means for impressing direct current or alternating current power.

Please add the following:

8. The semiconductor manufacturing apparatus according to Claim 2, wherein said vacuum vessel can be divided into a part including said processing chamber and a part having said substrate transport mechanism.

9. The semiconductor manufacturing apparatus according to Claim 2 comprising a plasma generation mechanism for generating plasma in said processing chamber.

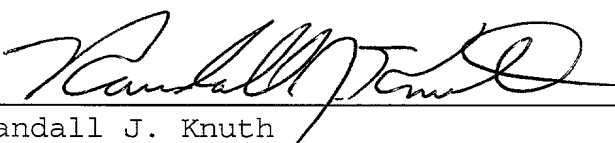
10. The semiconductor manufacturing apparatus according to Claim 3 comprising a plasma generation mechanism for generating plasma in said processing chamber.

11. The semiconductor manufacturing apparatus according to Claim 10, wherein said plasma generation mechanism radiates microwave thorough a slot antenna.

IN THE ABSTRACT

Please delete the abstract on file and replace it with the attached ABSTRACT OF THE DISCLOSURE.

Respectfully submitted,



Randall J. Knuth  
Registration No. 34,644

[illegible]

RANDALL J. KNUTH, P.C.  
3510-A Stellinghorn Road  
Fort Wayne, IN 46815-4631  
Telephone: 219/485-6001  
Facsimile: 219/486-2794

I hereby certify that this paper or fee is being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, DC 20231

(Typed Name of Person Mailing Paper or Fee)

(Signature of Person Mailing Paper or Fee)

## ABSTRACT OF THE DISCLOSURE

The semiconductor manufacturing apparatus of the present invention, is composed of a vacuum vessel, wherein at least one substrate stage is provided on the vacuum vessel bottom plate; a cylinder is installed surrounding the substrate stage, and the gap created between the cylinder and the vacuum vessel top plate or bottom plate is made variable by lifting/lowering the cylinder. At least one cylinder lifting/lowering mechanism per each cylinder is provided, in order to separate a space inside the cylinder composing a processing chamber for processing a substrate surface from a space outside the cylinder comprising a transport chamber for transferring the substrate. The transport chamber is provided with a substrate conveyer mechanism for transferring the substrate between the processing chamber and the transport chamber through the gap. The processing chamber is provided with a processing chamber gas inlet and a processing chamber gas outlet while the transport chamber is provided with a transport chamber gas inlet and a transport chamber gas outlet.